AMENDMENTS TO THE CLAIMS

Please amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims 1-70 indicated as cancelled:

Claims 1-70 cancelled.

71) (New) A method of predicting pharmacologic and/or pharmacokinetic and/or pharmacodynamic activity of a test material comprising the steps of:

incubating different concentrations of the test material with cell and/or protozoa and/or micro-organism; and determining the change in the morphology of the cell and/or protozoa and/or micro-organism;

wherein said change in the morphology serves for the calculation of the effective concentration of the test material in the blood, thereby predicting pharmacologic and/or pharmacokinetic and/or pharmacodynamic activity of the test material.

72) (New) A method of predicting the effective concentration of a test material in the blood comprising the steps of:

incubating different concentrations of the test material with cell and/or protozoa and/or micro-organism; and determining the change in the morphology of the cell and/or protozoa and/or micro-organism;

wherein said change in the morphology serve for the calculation of the effective concentration of the test material in the blood, thereby predicting the effective concentration of the test material.

73) (New) The method of claim 71, wherein said change in morphology is a change in area, shape factor, volume, radius, perimeter or the diameter of cell and/or protozoa and/or micro-organism.

74) (New) The method of claim 71, wherein said protozoa is from the group of Tetrahymena pyriformis or Tetrahymena thermophila, Tetrahymena Borealis, Tetrahymena Americanis.

75) (New) The method of claims 71, wherein said change in morphology is a change in area, shape factor, volume, radius, perimeter or the diameter of the cell and/or protozoa and/or micro-organisms.

76) (New) The method of claim 71, wherein the test material is a drug, a lead compound or a chemical entity.

77) (New) The method of claims 72, wherein said change in morphology is a change in area, shape factor, volume, radius, perimeter or the diameter of cell and/or protozoa and/or micro-organism.

78) (New) The method of claim 72, wherein said protozoa is from the group of Tetrahymena pyriformis or Tetrahymena thermophila, Tetrahymena Borealis, Tetrahymena Americanis.

79) (New) The method of claim 72, wherein said change in morphology is a change in area, shape factor, volume, radius, perimeter or the diameter of the cell and/or protozoa and/or micro-organisms.

80) (New) The method of claim 72, wherein the test material is a drug, a lead compound or a chemical entity.

81) (New) An apparatus comprising

(a) a donor compartment for retaining a sample of test material to be tested for extent of diffusion and/or permeation through a test membrane; and

(b) a receiver compartment, which comprises cells and/or protozoa and/or microorganisms, wherein said test membrane is located between said donor compartment and said receiver compartment.

82) (New) The apparatus of claim 81, wherein said receiver compartment comprises any species of the groups of Tetrahymena pyriformis or Tetrahymena thermophila, Tetrahymena Borealis, Tetrahymena Americanis.

83) (New) The apparatus of claim 81, wherein said test membrane is a biphasic membrane possessing hydrophobic and hydrophilic layers.

84) (New) The apparatus according to claims 81, wherein said test membrane is from natural, synthetic or semi-synthetic source.

85) (New) The apparatus of claim 84, wherein the membrane is collagen on silicone membrane.

86) (New) A apparatus according to claim 81, wherein the hydrophobic layer is comprised of silicone.

87) (New) A apparatus according to claim 81, wherein the hydrophobic layer is comprised of collagen and glycosamynoglycan.

88) (New) A apparatus according to claim 81, wherein the hydrophobic layer is comprised of silicone and the hydrophobic layer is comprised of collagen and glycosamynoglycan.

89) (New) A apparatus according to claim 81, wherein the hydrophobic layer is comprised of a one of the following components: silastic, silicone, ceramides, cholesterol, cholesteryl esters, cholesterol derivatives, phospholipids, free fatty acids, esters of free fatty acids, cellulose acetate/nitrate membrane, pure cellulose acetate with/without wetting agent, polysulfone membrane, glass fiber, Teflon, or combination thereof.

90) (New) An apparatus according to claim 81 in the form sacks and/or "teabags" and/or tubes and/or pockets and/or plates, dishes and/or containers.

91) (New) A system comprising at least one apparatus according to claim 81.

92) (New) A method of predicting the effective concentration of a test material in the blood comprising the steps of:

administering to the donor compartment according to claim 81, a sample of the test material; and determining the change in the morphology of said cell and/or protozoa and/or micro-organism;

wherein change in the morphology serve for the calculation of the effective concentration of the test material in the blood, thereby predicting the effective concentration of test material.

93) (New) A method of selecting a dermal or transdermal or cosmetic composition among a plurality of compositions, which comprise the same active ingredient, so as to obtain an effective concentration of the active ingredient in the blood, comprising the steps of:

adding at least one dose of each composition to the apparatus of claim 81;

determining the change in the morphology of the cell and/or protozoa and/or micro-organism; so as to select a composition, which is capable of providing an effective concentration of the active ingredient in the blood, thereby selecting a composition among a plurality of compositions, which comprise the same active ingredient, so as to obtain an effective concentration of the active ingredient in the blood.